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AUTHOR Martin, Lawrence A.
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ABSTRACT

This study was designed to investigate the effects of winning and losing competition upon the aggressive responses of intercollegiate basketball players and wrestlers. The Rosenzweig Picture-Frustration Study was administered to 32 Springfield College undergraduates (1) during a normal emotional state, (2) after winning a content, and after losing a contest. A 2X3 factorial ANOVA with repeated measures across one factor was used to analyze the data. Following winning competition, the normal level of extrapunitive aggression was reduced significantly for basketball players (P less than .05). After losing, wrestlers showed a significant increase in extrapunitive aggression (P less than .05). For all subjects, extrapunitive aggression was higher during the normal state than it was following winning competition (P less than .01). It was concluded that losing competition may be a more frustrating experience for individual sport athletes than for team participants. In addition, winning competition has aggression reduction value to both types of participants. (Author)

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EFFECTS OF COMPETITION UPON THE AGGRESSIVE RESPONSES OF COLLEGE BASKETBALL PLAYERS AND WRESTLERS

Lawrence A. Martin

Physical educators and coaches have long felt that competitive sports provide a medium through which participants are able to redirect pent-up aggression in a socially accepted manner. However, little recent scientific evidence is available concerning the effects of winning and losing competition upon the expressions of aggression.

This study was designed to investigate the effects of winning and losing competition upon the aggressive responses of basketball players and wrestlers. It was felt that an analysis of aggression in an individual sport (wrestling) and a team sport (basketball) might aid the coach and physical educator to better understand the personality dynamics of various groups of participants.

In studying the effects of competition upon expressions of aggression, there has been limited evidence that considers the important variable of winning and/or losing (5) (7)

[1]Lawrence A. Martin is an associate professor of Physical Education at State University College at Cortland, New York. This study is part of a study submitted in partial fulfillment of the requirements of the D.P.E. degree at Springfield College, Springfield, Massachusetts, under the direction of Emery W. Seymour.

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Layman (9) has indicated that competition must be regarded as a frustrating experience especially for the loser. As early as 1939, Dollard (4) and a group of Yale psychologists postulated that aggression is always the consequence of frustration. Other psychologists have criticized the frustration-aggression hypothesis of Dollard as being too broad in scope and have presented the idea that frustration produces a varied response which is definitely a reflection of past learning experiences (1) (11). In addition, Berkowitz (3) has stated that frustration is not the sole cause of aggression.

There are two widely held theories on the expression of aggression. One of the more prominent theories, catharsis, as described by Dollard et. al. (4) suggests that the expression of any form of aggression reduces the instigation to further aggression. A second theory supported by social learning theorists and known as the reinforcement theory states that if aggression is positively reinforced, there will be a strong tendency for aggressive acts to re-occur under similar conditions and inhibitions towards aggression will be decreased. (2) (10)

As noted by Martens (10), there is little empirical evidence for support of the catharsis hypothesis. In a

review of the catharsis literature related to vigorous physical activity, both Ryan (13) and Layman (8) tend to agree. Berkowitz (3) has stated that an angered individual may experience some reduction in aggressive energy if he can retaliate directly against his frustrator without feeling guilty. However, this opportunity rarely presents itself in social relationships and possibly not even in athletic competition.

Research reviewed both in the area of physical education and the social sciences reveals that the study of aggression is a complex matter subject to a number of limitations (1) (2) (5) (6).

Method

Subjects

The subjects in this study consisted of 32 male undergraduate students at Springfield College divided into the following groups: (A) Intercollegiate basketball players - eight varsity and eight freshman (B) Intercollegiate wrestlers - nine varsity and seven freshman.

Procedures

The Rosenzweig Picture-Frustration Study was administered to each subject during a normal emotional state about

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a month prior to the first scheduled contest, directly after a winning contest, and directly after losing a contest. Each test protocol was scored according to type and direction of aggression as described by Rosenzweig, Fleming and Clarke (12).

Direction of aggression included (A) extrapunitive - aggression directed outwardly toward the environment, (B) intropunitive - aggression is turned by the subject upon himself, (C) impunitive - aggression is evaded in an effort to gloss over the frustration. Type of aggression included (A) obstacle-dominance - the barrier which causes the frustration is prominent in the response, (B) ego-defense - attention is focused on the protection of the thwarted individual, (C) need-persistence - the response emphasizes the solution to the frustrating problem.

Results

Scores for all subjects under each treatment were computed and analyzed by means of a 2X3 factorial ANOVA with repeated measures across one factor. The acceptable level of significance was .05.

Of the six scoring variables analyzed the only variable to show a significant F-ratio on interaction was extra-

punitive aggression. As presented in Table 1, the ANOVA showed a significant interaction between type of sport and state (normal, winning, losing), $F=4.05$, $P<.05$.

TABLE 1

ANOVA OF EFFECT OF NORMAL, WINNING AND LOSING STATE ON EXTRAPUNITIVE AGGRESSION

Source	SS	df	MS	F
Sport	34.44	1	34.44	1.59
Error (between)	649.25	30	21.64	
State	58.29	2	29.14	10.04 [b]
State X Sport	23.54	2	11.77	4.05 [a]
Error (within)	174.18	60	2.90	

[a] Significant at .05 level

[b] Significant at .01 level

The Newman-Keuls Test of differences between ordered means, an a posteriori test, was used for further analysis of the data. The results of the Newman-Keuls test are presented in Table 2. Individual mean comparisons of basketball players indicated a significant (.05) reduction in extrapunitive aggression following winning competition, as compared to the normal state. The other significant difference (.05) between winning and losing scores was not of major importance in this

study. A comparison of wrestlers scores showed a significant (.05) increase in extrapunitive aggression after losing as compared to the normal state. Again, the significant difference (.05) between winning and losing scores was not considered to be a major concern.

TABLE 2

NEWMAN-KEULS TESTS OF DIFFERENCES BETWEEN ORDERED MEANS

Basketball - Extrapunitive

	Win	Lose	Normal
Means	9.41	10.66	11.72
Win		1.25 [a]	2.31 [a]
Lose			1.06

Wrestling - Extrapunitive

	Win	Normal	Lose
Means	10.78	11.63	12.97
Win		.85	2.19 [a]
Normal			1.34 [a]

[a] Significant at .05 level

As noted in Table 1, there was a significant main effect, ($F=10.04$, $P<.01$), between the three states when basketball players and wrestlers were combined into one group. The results

of the Newman-Keuls Test are reported in Table 3. During the normal state, extrapunitive aggression was higher for all subjects than it was following competition ($P<.01$). Losing scores were significantly higher than winning scores, but, again this is not of major concern.

TABLE 3

NEWMAN-KEULS TESTS OF DIFFERENCES BETWEEN ORDERED MEANS
BASKETBALL AND WRESTLING - EXTRAPUNITIVE

	Win	Normal	Lose
Means (Combined)	10.09	11.67	11.81
Win		1.58 [b]	1.72 [b]
Normal			.14

[b] Significant at .01 level

The only other variable which showed a significant F-ratio was ego-defense, a type of aggression in which attention is focused on protection of the thwarted individual.

As indicated in Table 4, there was a significant main effect in relation to state. When all subjects were combined, there was a significant difference (.05) between normal, winning and losing scores on ego-defense ($F=4.57$, $P<.05$).

TABLE 4

ANOVA OF EFFECT OF NORMAL, WINNING AND LOSING STATE ON EGO-DEFENSE

Source	SS	df	MS	F
Sport	4.82	1	4.82	.61
Error (Between)	238.08	30	7.94	
State	23.22	2	11.61	4.57 [a]
State X Sport	9.01	2	4.50	1.77
Error (Within)	152.44	60	2.54	

[a] Significant at .05 level

The Newman-Keuls Test between ordered means was used to determine significant mean differences when subjects were combined. As noted in Table 5, all subjects were significantly (.05) less ego-defensive after winning competition than they were in a normal state. Winning resulted in significantly (.05) less ego-defensive reactions than losing.

TABLE 5

NEWMAN-KEULS TESTS OF DIFFERENCES BETWEEN ORDERED MEANS BASKETBALL AND WRESTLING - EGO-DEFENSE

	Win	Normal	Lose
Means(Combined)	12.50	13.41	13.64
Win		.91 [a]	1.14 [a]
Normal			.23

[a] Significant at .05 level

Discussion

Overall, it is difficult to arrive at a specific pattern of aggression for any of the participant groups involved in this study. Type of sport and outcome of the contest both appear to have an interacting effect upon the aggressive responses of the participant.

On the basis of this study, it would appear that participation in a team sport (basketball) should be viewed quite differently from participation in an individual sport (wrestling) in relation to effects of winning and losing competition.

This research tended to lend support to the catharsis theory of aggression for intercollegiate basketball players, following participation in a winning contest. Losing competition has the opposite effect for wrestlers in that they experienced an increase in extrapunitive aggression after losing a contest. A possible explanation might be that since the wrestler is solely responsible for his success or failure, he is less apt to rationalize his loss on extraneous factors. Losing may produce a more frustrating experience for the wrestler, whereas the basketball player may place the blame on factors other than his own poor performance and thus

exhibit less extrapunitive aggression in order to protect his ego. The wrestler appears to be somewhat more ego-involved in his activity than the basketball player. As would be expected, winning competition has a more positive effect on both groups in terms of a reduction of extrapunitive aggression and ego-defensive reactions.

The aggression-reduction value of sport participation is not a simple matter. This study indicates that participation in a losing contest may be a frustrating experience for intercollegiate wrestlers. Coaches and physical educators should consider this in the post-game relationships with participants. In discussing the benefits of competition, physical educators should also emphasize the importance of permitting aggressive behavior within limits, according to rules and regulations, so that the participant develops self control and emotional maturity rather than complete uninhibited aggression. In addition, coaches should make clear to athletes the distinction between reactive and instrumental aggression as noted by Layman (9). Emphasis should be placed on maintaining a cool objectivity in the pursuit of individual excellence without advocating anger-induced activity with the goal orientation of physically injuring an opponent.

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